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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/404,292	09/23/1999	KENNETH LEE LEVY	LEVY/R	8259

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EXAMINER

KIM, CHONG R

ART UNIT	PAPER NUMBER
2623	7

DATE MAILED: 08/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/404,292	LEVY, KENNETH LEE
	<b>Examiner</b>	<b>Art Unit</b>
	Charles Kim	2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on \_\_\_\_.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 24-26, 28-50 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 24-26 and 28-50 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)  The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All b)  Some \* c)  None of:

1.  Certified copies of the priority documents have been received.
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)  The translation of the foreign language provisional application has been received.

15)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)      4)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)      5)  Notice of Informal Patent Application (PTO-152)  
3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.      6)  Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Restriction***

Applicant's election without traverse of group II of claims 24-26, in Paper No. 6 is acknowledged.

This application contains claims 1-23, and 27 that are drawn to an invention nonelected without traverse in Paper No. 6.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 25, 29, 36, and 40-50 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Referring to claim 25, the phrase "combined data" in line 4 is non-enabling because the specification does not disclose compressing combined data.

Referring to claim 36, the phrase "the data signal includes the auxiliary information embedded therein during said compressing step" is not supported by the specification.

Referring to claim 40, the phrase "embedding the retrieved auxiliary information in the transformed data signal" in line 6 is not supported by the applicant's specification. The applicant discloses embedding auxiliary data in a transformed signal on page 5 of the specification, but fails to described embedding the "retrieved" auxiliary information.

Claims not mentioned specifically depend from non-enabling antecedent claims.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 24-26, 28-32, 34-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 24, the claim recites a method but does not clearly indicate the steps included in the method.

Claim 25 recites the limitation "the combined data" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 25 further recites the limitation "re-embedding" in line 5. There is insufficient antecedent basis for this limitation in the claim. The applicant fails to include an initial step of embedding the auxiliary information.

Claim 26 recites the limitation "the compressed information" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 26 further recites the limitation "the non-compressed data" in line 5. There is insufficient antecedent basis for this limitation in the claim. It is suggested that the applicant change the phrase "non-compressed" to "de-compressed".

Claim 32 recites the limitation "the decompression" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 34 recites the limitation "the compressed data signal" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is suggested that the applicant change the phrase "compressed" to "non-compressed".

Claim 35 recites the limitation "encoded in" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claims not mentioned specifically depend from indefinite antecedent claims.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 24, 28, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by the article entitled "Digital Watermarking of Raw and Compressed Video" by Hartung.

Referring to claim 24 as best understood in view of the 112 rejection, Hartung discloses a method of bypassing removal of embedded data during digital bit-rate reduction (page 6, part e

under "ATTACKS AGAINST WATERMARKS, AND REMEDIES) which includes using separate data embedding techniques for non-compressed and compressed data (pages 3-4. Note that Hartung discloses an embedding technique for non-compressed data on page 3, and a separate data embedding technique for compressed data on page 4, and using both techniques together on page 8, section 7 under "Conclusions")

Referring to claim 28 as best understood, Hartung discloses that the digital bit-rate reduction is compression (page 4, Hartung discloses compressed video data in MPEG format).

Referring to claim 31 as best understood, Hartung discloses that the compression comprises encoding (page 4. It is noted that MPEG data is a form of encoded video data).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 25, 29, 33-36, 40-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of the article entitled "Digital Watermarking of Raw and Compressed Video" by Hartung, and Nakano (U.S. Patent No. 6,298,142) as applied to claim 24, 28, and 31.

Referring to claim 25, Hartung discloses step (a): retrieving the auxiliary information from non-compressed data (page 3, third line from the bottom. It is noted that recovering the

hidden information is interpreted as being analogous to retrieving the auxiliary information.

Hartung also discloses that the auxiliary information has been inserted into the non-compressed data in an initial step). It is a well known practice to compress data in order to reduce its size for storage or transmission, thus Hartung teaches step (b): compressing data (in view of the 112 1<sup>st</sup> rejection, the limitation is interpreted to compress the image data as disclosed in the applicant's specification. Page 4, Hartung discloses compressing video data into MPEG format).

Hartung further discloses that step (c): auxiliary information can be embedded after compression (page 4. Hartung teaches embedding watermarking data into compressed MPEG data).

Nakano teaches us that compressing data that contains auxiliary information results in the lost of auxiliary information as a result of the compression (col. 2, lines 42-49).

Hartung does not explicitly state re-embedding the auxiliary information into the compressed data. However, since compressing data containing auxiliary information results in the loss of the auxiliary information, as taught by Nakano, it would have been obvious to re-embed the auxiliary information (that was embedded in the non-compressed signal) and that was extracted from the non-compressed data in the compressed data, in order make sure that the compressed data contains the same auxiliary information as the original uncompressed data. It would have been obvious and desirable to embed both the uncompressed and compressed data to ensure that the data always contains the auxiliary information for complete protection against unauthorized use (Hartung, page 1 under the Introduction).

Referring to claim 29 as best understood, Hartung further discloses that the compression comprises encoding (page 4. As described above, Hartung discloses compressed video data in MPEG format. It is noted that MPEG data is a form of encoded video data).

Referring to claim 33, see the rejection of at least claim 25 above.

Referring to claim 34 as best understood, Hartung further discloses that the auxiliary information is steganographically retrieved from the data signal (page 3. It is noted that the recovery of hidden information as disclosed by Hartung, meets the limitation of steganographically retrieving the information, as disclosed in the claim, since the applicant states that “in steganography, a message is hidden within another object or media” on page 2, line 29-30 of the specification).

Referring to claim 35 as best understood, Hartung further discloses that the auxiliary information is encoded in the compressed data signal in the form of a steganographic watermark (page 4).

Referring to claim 36, Hartung fails to explicitly state that the data signal includes the auxiliary information embedded during the compressing step. However, compressing data signals that includes auxiliary information was exceedingly well known and common in the art. For example, Nakano discloses that the data signal includes auxiliary information during the compressing step (col. 3, lines 47-53. It is noted that the watermark is embedded in the frequency domain after the transformation and before the quantizing and encoding steps. Therefore, the watermark is embedded during the compression step).

Therefore, it would have been obvious have the data signal of Hartung, to include the auxiliary information during compression, as taught by Nakano, in order to protect the data

during compression and eliminate the possibility of unauthorized use of the data during the compression step.

Referring to claim 40 as best understood, see the rejection of at least claim 25 above. Hartung further discloses performing a transformation on the original data signal (page 4. It is noted that the compression of video data to a MPEG format, as disclosed by Hartung, inherently includes a transformation of the original data, for example, DCT is defined as a transformation).

Referring to claim 41 as best understood, see the rejection of at least claim 34 above.

Referring to claims 42 and 43 as best understood, see the rejection of at least claim 35 above.

Referring to claim 44 as best understood, Hartung fails to explicitly state that the transformation causes the auxiliary information not to be detectable from the transformed data signal. However, since the auxiliary information disclosed by Hartung is a digital watermark that should be invisible (page 3, line 1), it would have been obvious for the auxiliary information not to be detectable as a result of the transformation.

Referring to claim 45 as best understood, see the rejection of at least claim 41 above.

Referring to claims 46 and 47 as best understood, see the rejection of at least claim 42 above.

Referring to claim 48 as best understood, Hartung further discloses that the embedding of the retrieved auxiliary information in the transformed data signal uses a robust embedding method for the transformed data signal (page 6, section 5 titled “Attacks against Watermarks, and Remedies”) that enables detection of the auxiliary information by a detector (page 3, lines 14-15).

Referring to claim 49 as best understood, see the rejection of at least claim 42 above.

Referring to claim 50 as best understood, see the rejection of at least claim 41 above.

5. Claims 26, 30, 32, 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of the article entitled "Digital Watermarking of Raw and Compressed Video" by Hartung, and Patterson (U.S. Patent No. 6,018,369).

Referring to claim 26 as best understood, Hartung fails to disclose retrieving the auxiliary information from the compressed data, decompressing the compressed information, and embedding the auxiliary information in the non-compressed data.

Patterson discloses retrieving the auxiliary information from the compressed data (col. 1, lines 49-51 and lines 64-67. It is noted that the close caption data is interpreted as being analogous to auxiliary information. Patterson also teaches that the close caption data is embedded in the user data portion in col. 2, lines 33-34. Therefore, it is assumed that retrieving the user data includes retrieving the close caption data), decompressing the compressed information (col. 1, lines 53-55), and embedding the auxiliary information in the non-compressed data, whereby the non-compressed data comprises the auxiliary information embedded therein (col. 2, lines 16-21 and figure 1).

Therefore, it would have been obvious to combine the teachings of Hartung and Patterson, by using separate data embedding techniques for non-compressed and compressed data, as taught by Hartung, in order to embed auxiliary information for compressed data by the steps of Patterson, so that the embedding schemes are robust against intentional or unintentional

attacks attempting to remove or destroy the auxiliary information (Hartung, page 6, section 5 labeled “Attacks against Watermarks, and Remedies”).

Referring to claim 30 as best understood, Patterson further discloses that the decompression comprises decoding (col. 1, lines 51-52).

Referring to claim 32 as best understood, see the rejection of at least claim 30 above.

Referring to claim 37, see the rejection of at least claim 26 above.

Referring to claim 38, Patterson fails to explicitly state that the retrieved auxiliary information is steganographically encoded in the de-compressed data signal. However, Hartung teaches us that auxiliary information can be steganographically encoded in data signals (page 3. It is noted that adding a digital watermark is interpreted as being analogous to steganographically encoding auxiliary information).

Therefore, it would have been obvious to steganographically encode the auxiliary information, as taught by Hartung, in the decompressed data signal of Patterson, in order to protect the decompressed data from being copied or use in an unauthorized manner (Hartung, page 1).

Referring to claim 39, see the rejection of at least claim 38 above.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

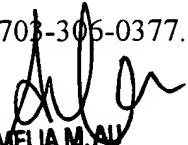
- a. Satoh U.S. Patent No. 6,175,639 discloses a digital data encode system.

b. Conover U.S. Patent No. 6,373,960 discloses embedding watermarks into compressed video data.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The examiner can normally be reached on Monday thru Thursday 8:30am to 6:00pm and alternating Fridays 9:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

  
AMELIA M. AU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600

*CK*  
ck  
August 20, 2002